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ABSTRACT

Collaboration between and among educational organizations is much discussed and often required by funding agencies, but measuring such collaboration is discussed much less. Collaboration has been characterized as a continuum of interdependence between partners that ranges from cooperation to coordination to collaboration. Seven features have been identified to determine where an interorganizational relationship would be plotted on the continuum. This study focused on the twin factors of the extent of independence-interdependence of the collaboration of clients with an educational R & D organization and the level of satisfaction with the collaboration. Data were collected annually for 4 years via a mailed survey to about 500 clients of the R & D organization. Satisfaction with the collaboration was collected from about 230 clients for 2 of those years. The internal factors of collaboration, such as leadership role and adequate support from the organizations involved, have greater effect than more external factors, such as the professional role of the educators or the years on the job. The important implications of this study are found more in the measurement related to collaboration than in factors that affect those measures. (Contains 10 references and 6 tables.) (Author/RT)

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Collaborative Partnerships Between Educational Organizations; Extent of Independence-Interdependence and Satisfaction With Collaboration

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Abstract

Collaboration between and among educational organizations is much discussed and often required by funding agencies, but measuring such collaboration is discussed much less. Intriligator (1983) and Goldman and Intriligator (1988) characterized collaboration as a continuum of interdependence between partners that ranges from cooperation to coordination to collaboration and identified seven features to determine where an interorganizational relationship would be plotted on the continuum. This study focused on the twin factors of the extent of independence-interdependence of the collaboration of clients with an educational R & D organization and the level of satisfaction with the collaboration. Data were collected annually for four years via a mailed survey to about 500 clients of the R & D organization. Satisfaction with the collaboration was collected from about 230 clients for two of those years. The internal factors of collaboration, such as leadership role and adequate support from the organizations involved, have greater effect than more external factors such as the professional role of the educators or the years on the job. The important implications of this study are found more in the measurement related to collaboration than in factors that affect those measures.

Collaborative Partnerships Between Educational Organizations;
Extent of Independence-Interdependence and Satisfaction With Collaboration

Traditionally, education and its improvement have been a concern of different types of educational organizations, such as elementary and secondary schools, colleges and universities, and state departments of education. Within the past several decades, educational research and development organizations have joined the efforts, specifically R and D centers at universities and regional educational laboratories (REL). Such centers and laboratories receive at least part of their funding from the United States Department of Education.

With the numerous initiatives intended to reform and improve education and the systems that underlie it, collaboration between educational organizations seems not only desirable, but increasingly necessary when addressing common goods. Collaborative partnerships can be formed through any combination of community groups, schools, school districts, colleges, universities, centers, RELs, social service providers, foundations, government divisions, and private sector organizations. Although any number of partners could be included, the most common arrangement is between two organizations.

Partnerships have potential payoffs for those involved. They can reduce overall costs associated with research and service delivery, limit the likelihood of service duplication, and provide much needed access to additional resources and staff who possess expertise not found in any one organization (Hodges, Nesman, & Hernandez, 1999). Moreover, when they work well, they contribute to the utility, support for, and ultimate success of educational improvement initiatives by making them relevant to a variety of partners.

One of the most common reasons for becoming involved in interorganizational collaboration

is the potential for developing novel solutions to complicated problems (Gray, 1989). Lawrence, Hardy, and Phillips (1999) note that such collaboration can lead to changes in existing practices, technologies, and rules, while providing access to new knowledge and resources which enhances organizational capacities. However, Lawrence and colleagues also note that interorganizational collaboration can result in the opposite outcome and reinforce existing institutionalized practices, technologies, and rules so that they become more deeply entrenched (e.g., Warren, Rose & Bergunder, 1974). Regardless, the impact of interorganizational collaboration on participants' satisfaction in both of these situations has not been thoroughly examined in the existing literature.

Background

Intriligator (1983) developed a framework for evaluating the effectiveness of partnerships between two or more organizations. Goldman & Intriligator (1988) further developed this framework characterizing it as a continuum of interdependence between partners that ranges from cooperation to coordination to collaboration with the degree of interdependence between partners increasing and autonomy decreasing from one level to the next. Intriligator & Goldman (1988) identified and utilized seven features to determine where an interorganizational relationship would be plotted on the continuum of collaboration. These include interagency objectives, interagency policies, interagency structure, personnel roles, resource allocation, power and influence, and finally, interagency relationships.

In Intriligator's scheme (Intriligator, 1992), the lowest level of interorganizational collaboration occurs when organizations remain autonomous except for some collaborative activities directed toward a particular, short-term, very focused goal. The relationship is cooperative and is terminated when the goal is achieved. For the next level, coordinative interorganizational

relationships, organizations work together on longer-term projects, and must determine how they will interact with each other, how the associated activities will be accomplished, what procedures will be used to resolve disagreements, and what procedures are needed to establish common knowledge about program operations and outcomes. The purpose of the work tends to be quite focused, the organizations continue to function independently for the most part, but relinquish some autonomy to achieve the joint goal of the organizational relationship. The highest level of collaboration occurs when organizations relinquish some of their autonomy to meet client needs and agree that their goal is best accomplished together as a combined effort on all levels; staff energies, skills, and resources.

Intriligator's conceptualization of collaboration is similar to that of Himmelman (1996), who views collaboration as part of a developmental continuum of increasing complexity and commitment. Himmelman sees the continuum as "Strategies for Working Together," and he includes a fourth strategy, networking, which precedes coordinating on the continuum. Networking simply consists of exchanging information for mutual benefit. Time, trust, and turf are the most common impediments to collaboration and Himmelman (2001) notes that any of the strategies will be most useful when there is a shared vision; meaningfully shared power; and accountable, responsible, mutually agreed-upon actions.

As an REL involved in educational research and development, AEL, Inc. is involved in numerous collaborative activities, many with, but not limited to, those with schools and school systems. AEL has a commitment to collaboration with such organizations known as "clients." The perceptions of that collaboration and the extent of client satisfaction are important issues for AEL. This study focused on those two factors, the extent of independence–interdependence of the collaboration and the level of client satisfaction with the collaboration.

Research Questions

This study was designed to address the following questions:

1. Is it possible to create a reliable measure of perceived interorganizational collaboration based on Intriligator's continuum of independence-interdependence between partners and the seven features of collaboration she identified?

2. What is the perceived level of collaboration between an R&D organization and its clients as indexed by such a measure, and to what extent do perceptions of collaboration vary as a function of client characteristics including the state where they are employed, professional role, years employed as an educator, and years employed in present position?

3. To what extent are clients satisfied with the level of collaboration between themselves and an R&D organization, and to what extent does perceived satisfaction with collaboration vary as a function of the client characteristics named above?

4. What is the nature of the relationship between clients' satisfaction with collaboration and their perceived extent of the collaboration on Intriligator's continuum?

Methodology

Over a four-year period, 1996-1999, AEL included as part of its client survey, instruments designed to measure the two factors described above. The client survey was administered to a purposive sample. The sample members were selected by AEL program managers and those selected had been involved with AEL in a project extensive enough that some level of collaboration was required. The survey was conducted through a mailed questionnaire.

Instruments

The two instruments or scales addressing collaboration are described below, including their rationale and their use.

Collaboration Continuum Scale (CCS). The CCS was based on the seminal work of

Intriligator on interorganizational relationships (1983, 1992) and on her continuum of increasing interdependence, from cooperative, to coordinative, to collaborative arrangements. Then, from the evaluation study by Goldman and Intriligator (1988), the seven features that determine where an interorganization arrangement is in terms of the collaboration continuum were employed as the items in the scale. These seven features/items are: interagency objectives, interagency policies, interagency structure, personnel roles, resource allocation, power and influence, and interagency relationships.

The response options for each of the seven CCS items were five-point, Likert-type scales ranging from 1 to 5. Descriptors were printed under the numbered responses and they were: 1 = Highly Independent, 2 = Somewhat Independent, 3 = About Equally Independent and Interdependent, 4 = Somewhat Interdependent, and 5 = Highly Interdependent. The specific instructions given to respondents for the collaboration scale were as follows:

> For any project(s) or activity(ies) on which you have worked with AEL staff in the past or presently, please indicate the level of collaboration between your agency and AEL on the seven concepts listed below. In responding to these concepts, use a 5-point scale of level of collaboration from highly independent actions of the two agencies to highly interdependent actions of your agency and AEL. The scale for each concept is named below:

Figure 1. **Scale for each CCS concept.**

--------- 1 ---------	--------- 2 ---------	--------- 3 ---------	--------- 4 ---------	--------- 5 ---------
Highly Independent	Somewhat Independent	About Equally Independent & Interdependent	Somewhat Interdependent	Highly Interdependent

In addition to the seven independent features/items being rated on a scale of 1 to 5, a total CCS score was computed by adding the scores on the seven items. Conceptually, the seven items of the CCS address a common construct, namely, the perceived independence-interdependence of the collaboration. Total scores could range from a possible low score of 7, indicating most independent or strictly cooperative relationship, to a high of 35, indicating most interdependent or fully collaborative relationship. On the Intriligator continuum, the higher the score, the higher the interdependence and, thus, the more collaborative the interorganizational relationship.

Satisfaction with Collaboration Scale (SCS). This scale was administered in 1996 and 1997 only. Items on this scale sought to measure the clients' level of satisfaction with their collaboration with AEL staff on a multiple-year partnership project such as an R&D project, an ongoing network, or a continuous partnership between AEL and a state department of education and its staff. Originally, ten items made up the SCS, but an additional item was added in 1997. The response options for each item were five-point, Likert-type scales with 1 being low satisfaction and 5 high satisfaction. The options were printed to the right of the stems which appear in the SCS table (below). Item j was the added item for the 1997 survey.

As with the CCS, a total score was computed for the SCS by summing the scores of the individual items. The items of the SCS address a common concept or construct, that is, clients' self-report of their satisfaction with the collaboration.

Analyses

Data were collected on the CCS over the four-year period for approximately 500 clients and for about 230 clients on the SCS since it was used only two years, 1996 and 1997. Although asked

to respond to all items, occasionally respondents omitted items within a scale. Thus, the numbers in the results tables will vary somewhat. In order to compute a total score for a scale, an individual must respond to all items in the scale.

The primary interest of this study focused in the descriptive statistics for the CCS and SCS. Responses for the individual items were summarized. The scales for the individual items were ordinal measurement. However, as general indicators of central tendency (locators on the scales) and dispersion, the mean and standard deviation were computed for each. The frequencies of responses (N) also are given, in results tables, because as indicated above, these vary somewhat.

Demographic data also were collected from the respondents. These included state where employed, professional roles, and for educators, the number of years employed as an educator and the number of years in present position. Most clients were employed in AEL's four-state region—Kentucky, Tennessee, Virginia, and West Virginia—and by far, the majority were educators.

There were six categories of professional roles, all educators, that had what were considered adequate numbers in the categories[1]. The professional roles represented in the sample were: teacher, principal, superintendent, K-12 central office staff (COS) involved in administration but not the superintendent, K-12 central office staff involved in programs, and finally educators employed at state departments of education. A central office individual involved in a program may, for example, have been the supervisor of a curriculum area.

Analyses of variance (ANOVA) were computed using total scale scores as dependent variables and demographic variables as independent variables. ANOVA is an inferential statistics procedure which applies to random samples when testing for differences between means. The

respondents of this study were not random samples, so ANOVA does not apply in the classical sense. The ANOVAs were computed for a comparison of the within and between groups' variations in the total scale scores.

Finally, for those respondents having both CCS and SCS total scores, the correlation between the two scores was computed. Correlation coefficients also were computed between these total scores, years employed as an educator, and years in present position.

Results

The results for the individual scales are presented first, followed by the correlational results. The reliabilities of the scales' scores were estimated by computing Cronbach alpha coefficients, estimates of internal consistency reliability. The reliability estimate for the CCS was .97 and that for the SCS, .96. Response rates of the surveys were around 50%.

CCS Results

The frequencies, means, and standard deviations for the CCS items are given in Table 1. The response scale for these items represents a continuum from independent to interdependent; the greater the rating, the more interdependent the perceived level of collaboration. A rating of 3.0 indicates about equally independent and interdependent, or coordination on Intriligator's continuum. All the means were greater than 3.0, the lowest on interagency structure being 3.20. Interagency objectives and relationships had the most interdependent ratings, both having means greater than 3.5. The standard deviations were homogeneous, all slightly greater than 1.0.

Table 1 – ***Frequencies (N), Means ($\bar{x}$), and Standard Deviations (s) for the items of the CCS Across All Respondents; 1996 through 1999***

	CCS Item	N	$\bar{x}$	s
a.	Interagency objectives	503	3.59	1.10
b.	Interagency policies	493	3.24	1.20
c.	Interagency structure	493	3.20	1.23
d.	Personnel roles	500	3.32	1.23
e.	Resource allocation	496	3.28	1.27
f.	Power and influence	495	3.29	1.19
g.	Interagency relationships	497	3.53	1.18

An ANOVA was computed on the CCS total scores (maximum possible value 35) and there were no statistically significant differences between the means for the four years. Similarly, ANOVAs with state where employed and professional role as independent variables showed no statistically significant differences between the means. The F-ratios for all three ANOVAs were less than 2.0. For the reader's information, the numbers, means and standard deviations for the categories of state where employed and professional role are given in Tables 2 and 3 respectively.

Table 2 – *Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the CCS Total Score by State Where Employed; 1996 through 1999*

State	N	$\bar{X}$	s
Kentucky	73	25.34	5.84
Tennessee	76	23.68	8.06
Virginia	116	23.03	7.00
West Virginia	154	23.49	7.86
F=1.57, df=3,415 Not significant			

Table 3 – *Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the CCS Total Score by Professional Role; 1996 through 1999*

Professional Role	N	$\bar{X}$	s
Teacher	152	22.39	7.20
Principal	68	24.56	8.14
Superintendent	44	24.23	7.82
K-12, COS, Administration	13	26.77	5.53
K-12, COS, Program	27	23.26	8.29
State Dept. of Education	47	24.13	5.97
F=1.64, df=5,345 Not significant			

The correlation coefficients between the CCS total score and years employed as an educator and years in present position were very slightly positive (.10 and .08 respectively). These correlations were of zero magnitude.

SCS Results

The statistics for the individual items of the SCS are given in Table 4. The "j" item has a substantially lower frequency than the other items because it was included only for 1997. The means on the 5-point scale all were above 4.00. Standard deviations were modest; all were less than 1.0 and most ranged between .75 and .85. Six, or over one-half of the SCS items, had medians of 5.0; and the remaining items had medians of 4.0. The frequencies of the response options showed that very few respondents indicated being dissatisfied. These negative responses ranged from only 2 (of 248) for item "d," relevance of the project to your professional situation, to 12 (of 239) for item "k," collaboration generated additional resources.

Table 4 – *Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the Items of the SCS Across All Respondents; 1996 and 1997*

SCS Item	N	$\bar{X}$	s
a. Leadership of AEL in the project	250	4.36	.82
b. Efficiency of cooperative efforts	249	4.31	.80
c. Dependability of AEL staff	249	4.55	.73
d. Relevance of project to your professional situation	248	4.42	.76
e. Support of AEL staff in the project	248	4.48	.80
f. Significance of educational concern addressed	249	4.45	.76
g. Usefulness of project results	244	4.24	.84
h. Extent to which project objectives were met	240	4.22	.90
i. Overall quality of the project	246	4.35	.80
j. Collaboration has increased the capacity of your organization to apply research to educational practice	194	4.12	.90
k. Collaboration generated additional resources	239	4.11	.98

As with the total scores of the CCS, ANOVAs were computed for the total SCS scores. Statistics are given in Tables 5 and 6. There were significant differences in the means for state where employed. Tennessee had the highest mean and Virginia the lowest, although the difference between the highest and lowest means was less than four points. This difference in means may have been more a reflection of the particular projects within the states than geographical location. As with the ANOVA of the CCS scores using professional role as the independent variable, the corresponding ANOVA for the SCS scores showed no significant differences between the means. There was one outlier mean of 38.50, but this mean was based on the responses of two individuals in K-12, central office staff-administration.

Table 5 – *Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the SCS Total Score by State Where Employed; 1996 and 1997*

State	N	$\bar{X}$	s
Kentucky	28	43.32	6.06
Tennessee	30	45.67	5.53
Virginia	60	41.73	8.46
West Virginia	94	44.52	6.77
F=2.78, df=3,208 significant at alpha=.05			

Table 6 – *Frequencies (N), Means ($\bar{X}$), and Standard Deviations (s) for the SCS Total Score by Professional Role; 1996 and 1997*

Professional Role	N	$\bar{X}$	s
Teacher	84	43.74	6.73
Principal	30	44.80	6.36
Superintendent	21	44.00	6.38
K-12, COS, Administration	2	38.50	12.02
K-12, COS, Program	15	43.67	8.23
State Dept. of Education	22	43.91	5.29
F=.39, df=5,168 Not significant			

The correlation coefficients between the total score on the SCS and years employed as an educator and years in present position were .23 and .14 respectively. Although positive, these correlations were of zero magnitude.

Finally, the correlation coefficient between the total scores of the CCS and SCS was .43 based on 184 respondents who had total scores on both measures. This correlation indicated a modest relationship so that the greater the satisfaction with the collaboration, the more the perceived interdependence of the collaboration.

Conclusions and Discussion

This study addressed the nature of collaboration between educational organizations when one of the collaborators is an REL, essentially an R and D organization. The level of collaboration was perceived to be slightly more interdependent than independent on seven factors, and this result was consistent across the factors. AEL took the initiative in commencing the collaborative activities

so these results would be expected and they likely represent a good balance between independence and interdependence. On Intriligator's continuum, this level of collaboration would be slightly above the coordinative position. The objectives and the relationships across organizations tend to be the most interdependent. As expected, structure and policies tend to be the most independent, because collaboration usually is accommodated within the policies and structures of the participating organizations.

The perceived level of collaboration is not affected by either the state where employed or the professional role of the educator participating in the collaboration. This perception is not related to either the length of time one has been an educator or the length of time in present position.

Individuals collaborating with AEL have a consistently high level of satisfaction with that collaboration. This satisfaction is not affected by the professional role of the participant, nor is it related to either the length of time one has been an educator or the time in present position. However, some differences were found among the states in which collaborators were employed. Of course, the specific collaborative projects varied across the states, so project was confounded with geographical location. Any differences in satisfaction likely are due to the specific activities rather than geographical location.

There seems to be a modest, positive relationship between satisfaction with collaboration and the extent to which the collaboration is perceived to be interdependent. With increased interdependence, there may be a tendency to view the collaborating partner as more involved in the activities and thus more supportive. AEL's leadership, support, and dependability received some of the highest satisfaction ratings, all factors that would be extensively involved in a collaborative relationship.

Collaboration among educational organizations has been going on for a long time, but with

the increased emphasis on educational improvement/reform, collaboration is very likely to increase. Federal and state funding initiatives often have collaboration among two or more educational agencies as an underlying assumption if not a requirement. The perceptions of, and the satisfaction with, that collaboration will impact the success of attaining the objectives of that collaboration, whatever they may be. So, information about collaboration has important implications for a successful, collaborative relationship.

The important implications of this study are found more in the measurement related to collaboration than in factors that affect those measures. For AEL, it is important to know how its collaboration activities are perceived and how satisfied "clients" are with the collaboration. These are issues that affect any collaboration, whether or not it involves an R and D organization. The internal factors of collaboration, such as the leadership role and adequate support from the organizations involved, have greater effect than more external factors such as the professional roles of the educators or their geographical location.

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Footnotes

[1]There were several professional roles not included in the analyses because the numbers were very small, and some respondents did not indicate a professional role. So, the total number of scores by professional role is less than the number for state where employed. Also, there were some respondents employed outside the AEL four-state region.

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